6.3 Worksheet #1

CONDITIONAL PROBABILITY

1. Andrea is a very good student. The probability that she studies and passes her math test is$ \frac{17}{20}$. If the probability that Andrea studies is$ \frac{15}{16}$, find the probability that Andrea passes her math test given that she has studied.
2. The probability that Janice smokes is 3/10. The probability that she smokes and develops lung cancer is 4/15. Find the probability that Janice develops lung cancer, given that she smokes.
3. The probability that Sue will go to Mexico in the winter and to France in the summer is 0.40. The probability that she will go to Mexico in the winter is 0.60. Find the probability that she will go to France this summer, given that she just returned from her winter vacation in Mexico.

1. A penny and nickel are tossed. Find the probability that the penny shows heads, given that the nickel shows heads.
2. A penny is tossed. Find the probability that it shows heads. Compare this answer to your answer to #4 and explain the results.
3. A spinner with dial marked as shown is spun once. Find the probability that is points to an even number given that it points to a shaded region.
4. Directly
5. Using the conditional probability formula
6. A family is known to have 2 children and they are selected from all families with two children. Find the probability that both children are boys, given that there is a boy in the family.
7. A die is tossed. Find P(less than 5 | even)
8. A number is selected at random from the set {1, 2, 3, 4, 5, 6, 7, 8}. Find:
9. P(odd)
10. P(prime | odd)
11. A bag contains three blue marbles, five red marbles, and four white marbles. If one marble is drawn at random, find:
12. P(Blue | White c )
13. P(Red c | White c )
14. A number is selected randomly from a container with all the integers from 10 to 50. Find:
	1. P(even | greater than 40)
	2. P(greater than 40 | even)
	3. P(prime | between 20 and 40)
15. A coin is tossed. If it shows heads, a marble is drawn from Box 1, which contains one white and one black marble. If it land tails, a marble is drawn from Box 2, which contains two white and one black marble. Find:
16. P(Black | Heads)
17. P (White | Tails)